

Oversight News

Newsletter of the Commonwealth's environmental oversight of the Paducah Gaseous Diffusion Plant

Annual Deer Harvest

The annual deer harvest at the PGDP occurred on July 25, 2006. Deer are analyzed for the following contaminants: PCBs, isotopic radiation emitters (Uranium, Cesium, plutonium, thorium, gross alpha and beta), Tc-99 (Technetium) and metals.

Deer are harvested to ensure that eating their meat does not pose a threat to human health and to determine whether the deer on and around the PGDP are healthy. The harvest usually occurs in late July so that the analyses can be performed before hunting season begins. This year, five deer were harvested and analyzed.

Information gathered from these harvests is helpful in learning about potential exposure

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C - 402 Lime House being demolished partway through D&D. *Photo courtesy of Jim Ethridge, DOE.*

C-402 Lime House - Going, Going, Gone!

Decontamination and Decommission (D&D) activities of the 1950s-era C-402 Lime House are nearing completion. All that remains of the C-402 Lime House is the foundation, which will be addressed as part of the Soils Operable Unit.

Brief D&D Summary of C-402 D&D Activities

- 02-03-2006: DOE submits Removal Action Work Plan for C-402 Lime House
- 03-01-2006: KY Approves Removal Action Work Plan for C-402 Lime House
- 06-15-2006: DOE Proposes to Change a Stabilization Method
- 06-16-2006: KY Approves the Proposed Stabilization Method
- 07-26-2006: Structure Demolition Complete
- 08-14-2006: Rubble Containerized and Walk Down Complete
- 08-22-2006: Twelve Roll-Off Bins of Concrete Placed In C-746-U Landfill
- Late 2006: Four Sea-Land Containers shipped to Energy Solutions

By **Brian Begley**, KY Division of Waste Management, Hazardous Waste Branch.

C-410 / 420 Complex

Decontamination & Decommission Update

The process of decontamination and decommissioning (D&D) of the C-410/420 Building Complex has resumed. Work was temporarily suspended after a worker pulled an air line through an overhead area, accidentally snapping a $\frac{3}{4}$ -inch line containing uranium hexafluoride (UF_6). Work is scheduled or taking place in zones 38, 40, 44, and 52 — four of the complex's 64 work zones (See Figure). Work under way or recently completed includes removal of electrical bus work and switches, the refurbishing and recertification of two vintage cranes, removal of non-process piping, asbestos abatement and the stabilization of chipping paint associated with some of the outdoor discharge towers. D&D of the complex involves removal and disposal of various materials from inside its buildings. When completed, only the building's shell will remain.

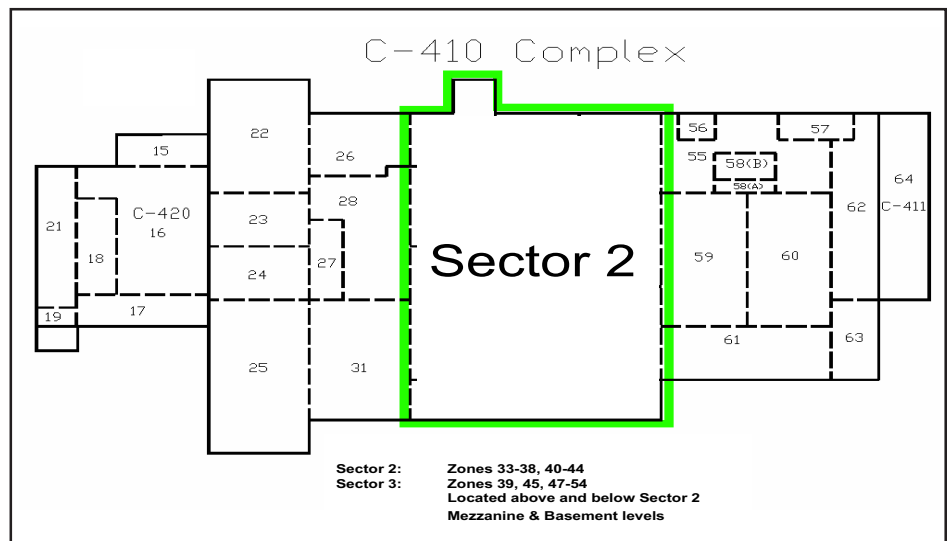


Above: Worker inside C-420 building scanning materials for radiation. Photo courtesy of Jim Ethridge, DOE.

Much of the early work inside the complex required the removal of miscellaneous trash and debris, most of which has been packaged and removed from the buildings. Approximately 15,000 to 20,000 cubic feet of debris awaits disposal at a facility operated by Energy Solutions of Utah. Removal of the materials has made worker access to other portions of the complex safer and less cumbersome. Project personnel are now focusing on the removal of other building elements.

The removal of bus work and switch gear from Sector 2 is complete and removal of similar material located above and below Sector

Below: Schematic of C-410 Complex showing where work is currently underway or scheduled to begin. Drawing by Todd Mullins, Ky. Division of Waste Management, Hazardous Waste Branch.



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OREIS Update

From May to July of 2006, 11 sets of environmental data associated with the Paducah Gaseous Diffusion Plant (PGDP) have been sent to Paducah Remedial Services (PRS) to be added to the Oak Ridge Environmental Information System (OREIS) database.

All samples were collected by Division of Waste Management (DWM) personnel. For two of the events, samples were split with the U.S. Department of Energy (DOE). The DWM sends its samples to an independent laboratory for analysis.

Use the Acronyms / Key to “decipher” the OREIS Project Codes below. These are actual projects recently conducted by the DWM at PGDP.

Acronyms / Key

AIP – Agreement in Principle
 WG – Groundwater
 MW – Monitoring Well
 WS – Surface Water
 CB – Catch Basin (sediment basin outlet)
 CH – Channel/Ditch
 SE – Sediment
 LK – Lake/Pond
 RV – River/Stream
 RW – Residential Well
Numbers – 1st is month, 2nd is year
 05 – 5th month (May)
 06 – 6th month (June)
 07 – 7th month (July)
 06 – year (2006)
 _2 – part 2
 _3 – part 3

By **Judy Dickerson and Vicki Voisard**, Ky. Division of Waste Management, Hazardous Waste Branch.

| <u>OREIS Project</u> | <u>Description</u> |
|----------------------|--|
| AIPWGMW0506 | Scheduled 2 nd quarter Monitoring Well Sampling Event |
| AIPWGMW0506SPLIT | May AIP Sampling event Split with DOE |
| AIPWSCBCH0506 | May Sediment Basin Sampling C-613 Lagoon part 1 |
| AIPWSCBCH0506_2 | May Sediment Basin Sampling C-613 Lagoon part 2 |
| AIPWSCBCH0506_3 | May Sediment Basin Sampling C-613 Lagoon part 3 |
| AIPWSSELK0506 | May 2006 Residential Request Pond Sampling |
| AIPWSRV0606 | Little Bayou Creek Seep Sampling AIP June Sampling Event |
| AIPWGRWMW0706 | July AIP Well Sampling |
| AIPWSCHCB0706 | July #2 Sampling Event—C-613 Sediment Basin |
| AIPWSCHRV0706 | July Sampling of Outfalls |
| AIPWGMW0706SPLIT | C-404 Operation and Maintenance Inspection |

Personnel Changes at KY DEP

Several personnel changes have occurred at the PGDP section in recent months. We wish the following people the best of luck in their future endeavors.

LeRoy Chittenden left DWM for another area of state government. Mr. Chittenden worked for the PGDP section for eight years on numerous projects and helped implement the OREIS database.

Lauren McDonald left the PGDP section to be closer to family. Mrs. McDonald was with the PGDP section for over five years and managed several projects. Areas under her oversight included DMSA closure plans, pub-

lic notices as well as *Oversight* Newsletter and PGDP Status Report, and other areas of the AIP portion of the section.

Lenn Roberts left state government to work as a consultant for an environmental firm in the Baltimore-Washington, D.C., area. Mr. Roberts worked for the Federal Facilities Agreement portion of the PGDP Section.

By **Nicole Burpo**, Ky. Division of Waste Management, Hazardous Waste Branch.

University of Kentucky Sampling Event

In late spring, scientists from the University of Kentucky Toxicology Lab collected numerous samples from creeks in the vicinity of the PGDP. Such sampling events occur twice a year – late spring and early fall. Samples are collected from 10 stations in Bayou Creek, five stations from Little Bayou Creek, and five outflows from the PGDP. Massac Creek is used as a reference water source, since water from the PGDP is not thought to be present there.

Water, stream sediments, and floodplain soils from Bayou and Little Bayou Creeks are collected for metal and PCB (polychlorinated biphenyl) analyses. Fish are collected and analyzed for metals and PCBs. On-site water quality measurements, which included temperature, pH, dissolved oxygen, and conductivity, also are taken.

In the past, the UK lab has also analyzed animals found at the PGDP, including bats, beavers, bees, chickens, an otter, a bobcat, raccoons and a red-tailed hawk. These studies were “collections of opportunity” and intended for use in preliminary screening and prioritizing further studies. All opportunity collections were analyzed for metals and PCBs.

Sampling events help in monitoring environmental conditions of waters downstream of the PGDP. The data



Above: The University of Kentucky Sampling Crew shocking Bayou Creek at Tract 2A. Photo by Nicole Burpo, Ky. Division of Waste Management, Hazardous Waste Branch.

help determine the extent of PCB migration in the water and sediment. The data also aid in monitoring fish for metals and PCBs, and possible human exposure.

The DWM uses these data to verify data from DOE. Sampling also helps in establishing parameters for human health and safety around the PGDP. By reviewing different media, the goal is to identify sources and magnitudes of available metals to the Bayou Creek system. The DWM relies on the data to identify and monitor outfalls from the PGDP.

Results of analyses performed by UK are available from the UK toxicology lab on request.

Adapted from articles from Wes Birge and David Price, University of Kentucky Toxicology Lab..

Left: A Longear Sunfish taken from Little Bayou Creek by UK. Photo by Nicole Burpo, Ky. Division of Waste Management, Hazardous Waste Branch.



Deer Harvest

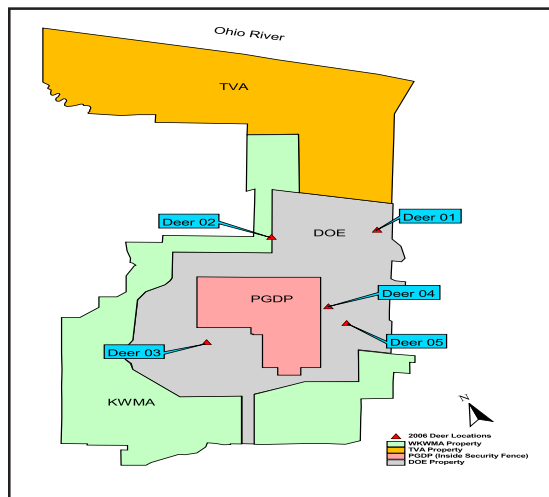
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pathways and for addressing public concerns regarding exposure to humans and wildlife.

Animals harvested this year showed no human health risks, so hunting season opened as usual.



Worker taking samples from a deer harvested in 2006. Photo by Jim Ethridge, DOE.



Map showing the location of deer when they were shot for the harvest. Map by **Brian Begley**, Ky. Division of Waste Management, Hazardous Waste Branch.

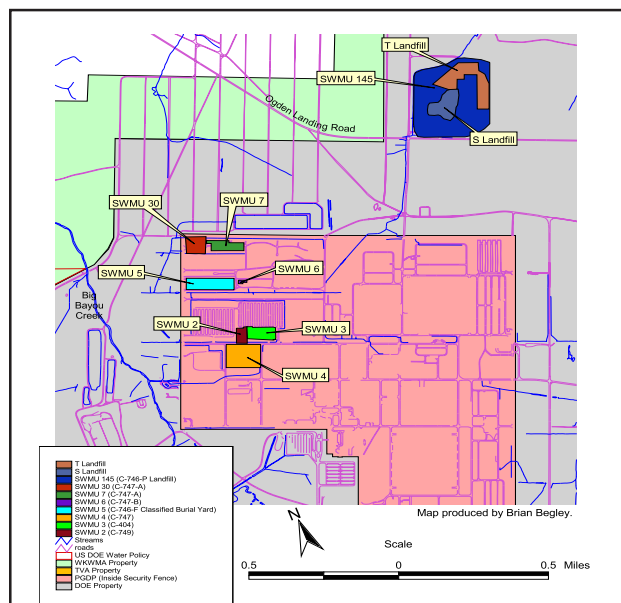
By **Nicole Burpo**, Ky. Division of Waste Management, Hazardous Waste Branch.

Burial Grounds

The Burial Grounds Operable Unit (BGOU) Project was last updated in the Fall 2005 edition of *Oversight* Newsletter. In December 2005 the Department of Energy submitted the second draft (D2) of the Remedial Investigation/Feasibility Study (RI/FS) Work Plan to the regulators – DWM and the EPA. The agencies reviewed the D2 version of the Work Plan and submitted comments to DOE. The DWM and EPA had several concerns, most of which evolved around Solid Waste Management Unit (SWMU) 5, also known as the C-746-F Classified Burial Ground. The DWM and EPA formally submitted D2 RI/FS Work Plan comments in June 2006. In August 2006 DOE addressed concerns of the regulators and resubmitted the RI/FS Work Plan as a D2/First Revision document.

Just prior to submitting the D2R1 version of the Work Plan,

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Locations of all SWMUs in the BGOU. Map by **Brian Begley**, Ky. Division of Waste Management, Hazardous Waste Branch

C-410 / 420 Building D&D

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tor 2 is due to commence once two 1950s vintage cranes have been certified for operation, a process that should be completed soon.

Workers continue to remove non-process piping known to have contained only inert liquids or gases from the aforementioned four zones (38, 40, 44, and 52). Removal of asbestos wrapping from pipes is a significant part of overall pipe removal. Removal of piping thought to contain hazardous substances such as fluorine gas or UF_6 is on hold pending approval of a plan to safely do the work.

Fixative was recently applied to two towers at the complex's northeast corner to prevent radioactively contaminated paint being dislodged when the towers are eventually removed. The towers cannot be removed at present due to their proximity to some active uranium enrichment process lines.

D&D of a facility as large as the 410/420 Building Complex is slow and sometimes dangerous and will take several years.

By **Todd Mullins**, Ky. Division of Waste Management, Hazardous Waste Branch

Scrap Metal Clean-Up Progress Report

As of July, more than 661 tons of scrap metal have been cleared from the scrap yards at the PGDP. This brings total scrap removed to more than 4,000 tons.

Due to budgetary cuts, no railcars have left the PGDP in a few months. More than 50 rail cars are loaded and ready for shipment to disposal sites. Remaining rail cars will leave when the final scrap is cleared. A completion ceremony will take place when the remaining scrap is cleared. U.S. Rep. Ed Whitfield (R-Ky.) and other Washington dignitaries have been contacted about attending the celebration.

By **Leo Williamson and Nicole Burpo**, Ky. Division of Waste Management, Hazardous Waste Branch

Scrap being loaded into a rail car (above) ready for shipment. A train loaded with scrap from the PGDP going to the disposal site (right). Photos by Jim Ethridge, DOE.



Burial Grounds

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DOE made DWM and EPA aware of new information concerning low concentrations PCBs in groundwater wells surrounding the three landfills (referred to as the S, T, and U landfills) and SWMU 145, which is beneath the S and T landfill. PCBs were not included as a contaminant of concern in the D2R1 Work Plan for SWMU 145 and several other burial ground units. DWM researched the historical PCB groundwater samples and along with EPA, issued a conditional approval of the D2R1 Work Plan. Approval was contingent upon DOE adding PCBs to the analyte list of samples. DWM asked DOE to move and/or add



Geophysical analysis being performed on SWMU 145. Photo by Jim Ethridge, DOE.

borings to SWMU 145 since the majority of historical PCB detects were in that area. DOE determined that additional borings were not necessary; however, the relocation of each boring was warranted. With all of the conditions met, KDWM and EPA issued their official approval letters in November 2006. The preliminary phase of field work, geophysics, was completed recently and field work is expected to start by mid-December 2006.

By **Brian Begley**, Ky. Division of Waste Management, Hazardous Waste Branch

| Burial ground ID | Surface Geophysics | Angle Borings | Vertical Borings | Soil Samples | Groundwater Samples | RGA Well Samples |
|------------------|---|---------------|---------------------|-----------------------|---------------------|------------------|
| SWMU 2 | No | 2 | 1 ¹ | 10 7 ¹ | 2 6 ³ | 1 (4 samples) |
| SWMU 3 | No | 4 | 1 ¹ 6 | 20 31 ² | 4 6 ³ | 1 (4 samples) |
| SWMU 4 | ---- No additional data required for BGOU RI ---- | | | | | |
| SWMU 5 | No | 3 | 0 | 15 | 3 | 0 |
| SWMU 6 | No | 4 | 0 | 20 | 4 | 0 |
| SWMU 7 & 30 | Yes | 12 | 3 | 81 | 30 | 0 |
| SWMU 145 | Yes | 7 | 0 | 35 | 7 | 0 |
| Total | NA | 32 | 11 | 219 | 62 | 2 (8) |

¹ Will be necessary only if current RGA groundwater wells are not acceptable and new wells are installed.

² Includes seven samples from one boring advanced to 60 ft and 24 samples from six borings advanced to 15 ft.

³ Includes six samples from one boring advanced 60 ft that will be necessary only if the existing MWs are not suitable.

Summary of retrieval method, media type and number of samples proposed for each SWMU in the BGOU. Table by **Brian Begley**, Ky. Division of Waste Management, Hazardous Waste Branch

To request additional copies of this Oversight Newsletter or be placed on the mailing list call or e-mail: Nicole Burpo, Division of Waste Management, (502) 564-6716 Ext. 244 or nicole.burpo@ky.gov.



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